

Government of India
Bhabha Atomic Research Centre
Electromagnetic Applications & Instrumentation Division

Ref No: EmA&ID/2021/PKR/15463

Date: 22/11/2021

-----To whom so ever it may concern-----

Sub: Fabrication & testing of spherical reflectors for cryogenic superconducting magnet conforming to technical specification no : EmA&ID/EMAS/PKR/21/111 dated 15.11.2021

Dear Sir/Madam,

1. Tenders are invited for "Fabrication & testing of spherical reflectors for cryogenic superconducting magnet conforming to technical specification no : EmA&ID/EMAS/PKR/21/111 dated 15.11.2021."
2. Bidder shall quote for manpower, purchase of raw materials, development & testing conforming to tender technical specification.
3. Taxes and Excise Duties shall be quoted separately. Form AF / H whichever is applicable shall be provided, if required.

The quotation must reach The Head, Electromagnetic Application & Instrumentation Division by 30.11.21 and must be sent in a sealed envelope super scribed with the reference number & the due date given above only through India Ordinary Post/Speed Post.

4. The address on the envelop should read: The Head,
Electromagnetic Application & Instrumentation
Division,
RCnD Bldg., North Site
BARC, Trombay,
Mumbai - 400 085.
(Kind Attn: RAI P K, TO/C)
5. The bidder shall complete the job within 4 months from the date of firm work order issued to the bidder.
6. Head, Electromagnetic Application & Instrumentation Division reserves the rights to accept / reject any or all quotations without assigning any reason.
7. Quotation must also indicate the validity of offer. Quotation must also indicate the GST No and PAN number of the supplier.
8. The quotation has to be signed by authorized person with company seal.
9. Payment will be made by EFT only after satisfactory completion of work on production of bill, delivery challan and advance stamped receipt. Income tax as applicable will be collected at the time of payment.
10. In case of any technical clarifications, the supplier may kindly contact the indenting officer through Email only. (Email ID: pkrai@barc.gov.in)



(RAI P K)
TO/C, EmA&ID

Technical specification

Document no.	Revision no.	Date of Issue	No of pages
EmA&ID/EMAS/PKR/21/111	0	15.11.2021	5

Fabrication & testing of spherical reflectors for cryogenic superconducting magnet1.0 SCOPE

Fabrication & testing of spherical reflectors for cryogenic superconducting magnet. The complete job shall be carried out strictly as per requirements, specifications and its compliance standards as detailed in this document. In this specification, the supplier shall be referred to as the "supplier" and Bhabha Atomic research Centre shall be referred to as the "buyer".

Supplier shall provide complete raw material to carry out the above jobs. The supplier shall be qualified as per Para 5.0 of this document. The brief description of contents of the tender specification document is as described below.

Para 2.0 gives the detailed job description.

Para 3.0 gives the deliverables.

Para 4.0 gives the general requirements.

Para 5.0 gives the requirements for raw material procurement.

Para 6.0 gives the requirements of supplier qualifications.

Para 7.0 gives the requirements of packaging and safe delivery.

Para 8.0 gives the confidentiality clause.

2.0 DETAILED JOB DESCRIPTION

The job involves alignment of the cryogenic superconducting magnet with the cryo vessel so that magnet centre line and vessel centre line. This ensures high uniformity of magnetic field in the volume of the measurement. Detailed job specification is given in the Annexure A.

3.0 DELIVERABLES

Fabrication of spherical reflectors for cryogenic superconducting magnet - 2 Nos

4.0 GENERAL REQUIREMENTS

4.1 The supplier shall submit detail design report and its troubleshooting, working manual.

4.2 The part number and the source of all the hardware's shall be clearly mentioned before purchase of the same from the market. They shall be purchased and installed only after prior approval from BARC. Any component of inferior quality purchased without prior approval will be rejected strictly.

4.3 The Supplier shall indicate in detail the standards adopted for the materials and processes and the quality control procedures followed by them.

4.4 Supplier can suggest the color, aesthetics, and other details as suitable. Supplier must offer best quality/IS certified material only.

4.5 Supplier should have similar work experience and along with the offer, shall submit the details of past experience with documentary proof.

4.6 Materials, tools, manpower etc required for the above work will not be supplied by the user. Supplier has to arrange the above on his own (No free issue material).

4.7 The supplier shall incorporate minor changes in the design as required at the time of execution of work at no extra cost.

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4.8 The above job shall be done strictly under the supervision of our engineers in test facility at BARC premises.

4.9 Working personnel shall observe all the safety precaution during working.

4.10 The working personnel shall behave well with other officers and workers inside BARC campus.

4.11 The contractor shall be solely responsible, in case of any casualty involving working personnel. However, first aid will be provided by BARC.

4.12 General BARC security rules shall apply to all the working personnel.

4.13 Entry permit will be issued on weekly basis and contractor shall have valid photo pass with valid Police Verification certificate (PVC) as per the norms of BARC security.

4.14 Prior permission will be taken from security if the persons are required to do the job on Saturday, Sunday, Holidays and beyond normal working hours (08:00 to 18:00 hrs).

5.0 RAW MATERIAL PROCUREMENT

5.1 The raw material, electrical components used by supplier for the manufacturing of these components shall be of brand new and shall not be used previously.

5.2 All the material shall strictly confirm to their corresponding IS standards and shall be purchased only after prior approval from the purchaser.

6.0 REQUIREMENTS OF SUPPLIER QUALIFICATIONS

6.1 The supplier shall be evaluated on the basis of the following criteria

6.1.1 The supplier shall have previous experience in carrying out similar such jobs inside BARC and copy /proof of the same shall be attached.

6.1.2 The supplier shall submit the details of the welder, fitter and other man power, facility available with the supplier to carry out the job successfully.

6.1.3 The supplier shall provide the list of their employees along with their valid PVC certificate, who are intended to work in this job.

6.1.4 The supplier shall have minimum experience of 5 years in the development of chiller and proof of document of the same shall be provided.

7.0 REQUIREMENTS OF PRICE AND DELIVERY SCHEDULE

7.1 The supplier shall give lump sum price for the raw materials and man power to complete this job.

7.2 The complete job is expected to be completed in a duration of 4 Months.

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8.0 CONFIDENTIALITY CLAUSE

8.1 No party shall disclose any information to any third party concerning the matters under this Contract generally. In particular, any information identified as "Proprietary" in nature by disclosing party shall be kept strictly confidential by the receiving party and shall not be disclosed to any third party without the prior written consent of the original disclosing party. This clause shall apply to sub-contractors, consultants, advisors or the employees engaged by a party with equal force.

8.2 "Restricted information" categories under section 18 of the Atomic Energy Act, 1962 and "Official secrets" under section 5 of the Official Secrets Act, 1923: Any contravention of the above mentioned provisions by any contractor / sub-contractor, consultant, advisor or the employees of the contractor will invite penal consequences under the aforesaid legislation.

8.3 Prohibition against the use of BARC's name without permission for publicity purpose. The contractor or sub-contractors, consultants, advisors or the employees engaged by a party shall not use BARC's name for publicity purpose through any public media like: press, radio, TV or Internet without any prior approval of BARC (wide circular ref.: 2/Misc-9/Lgl/2001/92 date 30/04/2001).

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Annexure A Technical Specification

1. The equipment should be capable of onsite dimensional measurement using contact probing system.
2. Contact measurement should be possible using spherically mounted reflector (SMR).
3. System should be capable of measuring in static and dynamic modes.
4. tracker should be configured and made compatible to work with software.
5. The tracker should be of robust construction and have excellent thermal stability (0-40 deg. C condition) & vibration isolation.
6. System should recognize and acquire the target automatically as target moves, tracker head should continuously track the target to acquire coordinates.
7. If the tracking Beam is interrupted during the measurement using SMR it should be possible to re-acquire beam with the target.
8. Integrated video camera attachment for easy and quick tracking and locking of target on job required.
9. Environmental monitoring and compensation unit for system and job.
10. The system should provide information about itself environmental and other parameters before it becomes critical the system should be self-diagnostic to various parameters Including excessive vibration, elevated temperature, laser beam.
11. System should have you read that monitors and compensates laser beam/ADM Beam for changes in temperature air pressure and relative humidity automatically.
12. Protection device is to incorporated for the entire electrical system control circuit power distribution system and software.
13. System should be supplied with the necessary cables for connecting tracker with power supply available electrical supply is 230V single phase/ 440V three phase 50 hertz.
14. Sturdy, waterproof carrying cases should be supplied for transportation of the entire system. and Telescopic handles to be e provided for easy movement of carrying cases.
15. Levelling equipment for Gravity oriented measurements should be provided.
16. Tracker stand extension (for raising the instruments to different Heights and inclination) should be provided.
17. SMR Kit should be coated with item wise cost
18. Safety class and certification for laser system should be provided by the vendor.
19. The system should be able to operate in environment like aircraft runway a Hanger dust shop floor etc. details of operating environment, IP class and storage conditions to be provided.
20. Tracker should be capable of being mounted on tripod/floor/ surface. should be stable during measurements and should be not required application of glue you are any other Adhesive medium.
21. Should have versatile mounting option should be able to measure in horizontal and vertical positions with quick release mechanism.
22. Periodicity of calibration to be provided.
23. On-line Remote Diagnostic of the system/ online help for maintenance application throughout the machine life, required.
24. Tracker Specifications:

Horizontal range: +/-320 degree or better.
Vertical range: -50degree to +75degree or better.
Precision level accuracy: +/-2 arc sec.
Protection level: minimum IP52 or better.
Laser emission: class 1 or class 2 laser.
Wi Fi compatible: Mandatory.
Ethernet Compatible: Optional.

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25. Measurement Accuracy:
MPE for 3D point (Uxyz) measurement (for full range): 16-micron metre + 6-micron metre/metre or better.

26. Reflectors: (Mandatory)
1 Nos. of 1.5" spherical Mount reflectors.
1 Nos of 0.5" spherical Mount reflector.
1 set of SMR cleaning kit.

Centring of optics: ± 0.00025 Inch or better (certificate to be provided). Items to be provided with suitable storage.

Provision